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Southern New Hampshire University

CS-499-19649-M01 Computer Science Capstone 2025

4-1 Journal: Career Choice and Artifact Update Assignment

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Part One:

The purpose of this paper is to explore the influence of the computer science program on my career choices and future ambitions. It's important to reflect on the motivations behind our persistent dedication to our professional objectives and how our views on our careers have changed over time.

Q. Have you changed your career plans? If so, what prompted this change? If not, why have you remained with your original plan?

It has been four years since I started my computer science program. I decided to pursue computer science because I was immediately fascinated by coding when I first encountered it. The experience of writing code, testing new concepts immediately, making quick adjustments, and receiving feedback from simple programs made my earliest coursework fast paced and enjoyable, which attracted me to this field. Opting for computer science felt like a natural decision due to its exceptional combination of technology and creativity, which merges practical abilities with imaginative thinking, encouraging me to seek a degree in this discipline at university. A career as an engineer will expose me to a wide range of complex topics, including artificial intelligence, machine learning, and cybersecurity.

A major reason why I chose this program was because of my interest in computers, which led me to take numerous courses, gaining knowledge of web development, databases, automation, testing, and programming languages. In addition, I gained experience working with a variety of IDEs, including Android Studio, Jupiter Notebook, and Visual Code. The possibilities in this field are endless, offering unlimited potential for innovation. It is exciting to think that my contribution could make a significant contribution to the advancement of our lives in the future.

Q. How has your thinking about your career evolved?

After joining this program, I have experienced a significant change in my thinking. With a greater understanding of software development, data structures, and engineering principles, I realized this career could be quite adaptable for me. At the time I joined this program, the focus was on completing tasks accurately using data and algorithms. Over time, I gained a broader perspective on computer science as my understanding evolved. It provided me with a solid grounding in IT and various computer-related subjects, as well as sharpened my analytical and logical reasoning skills. As a software engineer, this motivated me to engage in continuous learning and development so that I could stay relevant and ethically responsible in the field of computer science.

Q. Have you completed any research about your choice of career? How has this impacted your thinking?

Yes, I have done a fair amount of research regarding my new career in Software Engineering. The vastness of the field has made it both exciting and slightly overwhelming. Computer science is at the core of emerging social media platforms, smartphones, touch screens, video games, and artificial intelligence technology. There are so many areas in computer science to consider a career in software engineering from these areas of specialization. During this course, we have learned design and coding concepts, creating projects, analyzing and designing software systems, and many other aspects of the industry, which opens up a world of opportunities. This program had given deep insights and gave exposure that are very crucial to my career choice. Throughout my research, I discovered that while educational qualifications are important, hands-on experience and demonstrated projects often hold more weight in many situations. I feel more aligned with my career goals now that I am nearing the completion of my studies. These experiences have shaped our perspectives and skills, enabling us to manage multiple tasks simultaneously or contribute to larger projects.

Q. Have you thought about seeking an advanced degree or certification after earning your undergraduate degree?

My primary focus at the moment is to gain practical experience by creating a portfolio of my work before pursuing an advanced degree, such as a master’s in computer science. Therefore, I have focused on hands-on learning and project development to improve my skills. Starting with an entry-level position that facilitates our growth and skill development, I hope to progress in a variety of different roles. I will be able to gain insight from more experienced teammates and work on group projects with them.

Q. Which course outcomes have you achieved so far, and which ones remain?

Throughout my program, I gained experience using specialized software commonly employed in the tech sector, including programming languages, development frameworks, databases, and other software applications. Although I don't have practical experience, I am capable of adapting theoretical ideas into real-world applications and effectively resolving issues. In my computing solutions, I have demonstrated the ability to optimize through modular components, choose data structures creatively, and build algorithms based on algorithmic principles.

While I am improving my understanding of design thinking processes, the principles of interaction design, and interface elements to create compelling user interfaces, I still need to work on them. I am confident that I will achieve these goals with consistent practice

Part Two:

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| **Checkpoint** | **Software Design and Engineering** | **Algorithms and Data Structures** | **Databases** |
| **Name of Artifact Used** | Weight Tracking App from CS 360 course  ( Mobile Architecture and Programming) | Animal\_main.py  Animal\_module.py (CS 340: Client/Server Development) | Animal Rescue Dashboard with MongoDB (CS 340: Client/Server Development) |
| **Status of Initial Enhancement** | My goal is to build a well-designed user interface that incorporates account creation and input validation for easy system navigation and understanding of its security measures. Thus, demonstrating my grasp of data visualization and management principles and focusing on user-centric principles. | My goal for this project is to use Indexing, sorting, and CRUD operations that can be performed more efficiently, thus demonstrating my capacity to improve the system's efficiency. I will show my algorithm optimization skill by minimizing unnecessary processes, making the program more efficient. Improvements in data structure efficiency, focusing on optimizing list for quicker lookups | By implementing indexing and aggregation pipelines, I am improving query performance in MongoDB and handling larger datasets. Currently, I am researching optimization strategies but I have not yet finalized my approach. |
| **Submission Status** | Preliminary work has started, but no enhancements have been submitted yet. | Efforts are underway to enhance with the advanced List algorithms using Merge sort, linear search etc. Still currently working on initial improvements, but they have not been submitted yet. | A submission hasn't been made yet; I am still improving it and focusing on different methods using field queries, geo queries, indexing, etc to improve search speed and performance. |
| **Status of Final Enhancement** | As of now, the project is still in progress. I am still configuring the chart's appearance, labels, and legend. Besides that I have worked on the input validation by Using the setError() method of EditText to display error messages directly in the input field. I aim to implement its functionality in their software design and development. | Continuing with algorithm optimizations for runtime efficiency. Work is still in progress on creating the list and testing it with other elements such as append, remove, pop, etc. Using methods that also allows us to access individual elements directly. | Improvements are in progress. To enhanced with additional database features and a more efficient data access strategy. Utilizing aggregation pipelines more effectively and improving query speed. |
| **Uploaded to ePortfolio** | The file has not yet been uploaded. | There is still work to be done on the finalized ePortfolio. | There is still work to be done on the finalized ePortfolio. |
| **Status of Finalized ePortfolio** | Enhancements are ongoing, so the ePortfolio is not yet complete. | There is still work to be done on all categories of the ePortfolio before the final version is ready | There is still work to be done on the finalized ePortfolio. |

**Status Checkpoints for All Categories**

**References**

*Andersen, G. (2024, January 15). The role of algorithms and data structures in software development. MoldStud. https://moldstud.com/articles/p-the-role-of-algorithms-and-data-structures-in-software-development*

*Bansal, A. (2024, September 26). 7 phases of the System Development Life Cycle Guide. CloudDefense.AI. https://www.clouddefense.ai/system-development-life-cycle/*

*Hands-on learning. RSS. (n.d.). https://www.structural-learning.com/post/hands-on-learning*

*Top 7 multitasking interview questions (with sample answers) | indeed.com. (n.d.-aa).*

*IXDF Design Compendium: The World’s biggest collection of design knowledge. The Interaction Design Foundation. (n.d.). https://www.interaction-design.org/literature/topics*

[*https://www.indeed.com/career-advice/interviewing/multitasking-interview-questions*](https://www.indeed.com/career-advice/interviewing/multitasking-interview-questions)

*What is a computer programmer?. ComputerScience.org. (2024, August 28). https://www.computerscience.org/careers/computer-programmer/*